

PATENT SPECIFICATION

DRAWINGS ATTACHED

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832,247



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International Classification:—B31f. B65b.

COMPLETE SPECIFICATION

Improvements in Web-Severing Mechanisms

5 We, ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company, of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to web-severing mechanisms, and more particularly to such mechanisms in wrapping machines.

15 According to the present invention, a web-severing mechanism comprises a ledger blade and a knife blade adapted for relative oscillation for movement into and out of cutting engagement with each other, a web-guiding surface on the knife blade extending rearwardly from its cutting edge, a stripper blade secured to the knife blade to cause its stripping edge to
20 move relatively to the ledger blade through a plane containing the edge of the ledger blade in close proximity to that edge, the edge of the stripper blade being spaced from that of the knife blade by an amount sufficient to allow
25 clear passage of the web, and a web-supporting surface on the stripper blade extending rearwardly from its edge in spaced relationship with the guiding surface on the knife blade, the web-guiding and supporting surfaces diverging rearwardly to form a tapered
30 guiding channel. The edge of the knife blade is preferably inclined slightly in the lengthwise direction to provide for progressive cutting engagement with the ledger blade in known manner.
35

40 The web-guiding and supporting surfaces together provide a guiding channel for leading the web past the ledger blade in readiness for each cutting action, and with the web fed forwards in timed relationship with the oscillation of the knife and stripper unit, the web is first severed by movement of the knife blade into cutting engagement with the ledger blade and then, upon reverse movement of

the unit, the leading edge of the web is stripped from the ledger blade and led past that blade in readiness for the next cutting action. 45

Preferably, the ledger blade is stationary and the knife blade oscillated for movement into and out of cutting relationship with the ledger blade, though the knife blade may be stationary and the ledger blade oscillated into and out of cutting engagement with the knife blade, if desired. Again, both may be oscillated to bring their edges into and out of cutting engagement. 50 55

The gap between the edge of the knife blade and that of the stripper blade need only be sufficient to allow comfortable passage of the web, say 1/16" or less, and in order to avoid undue oscillation of the web itself, the guiding and supporting surfaces on the knife and stripper blades, respectively, diverge rearwardly to form a tapered guiding channel. 60 65

The knife and stripper blades are conveniently made as two semi-cylindrical segments secured together at their ends by collars each forming part of a journal by which the assembly is pivotally mounted for oscillation in the machine, the flat surfaces of the two segments being ground away between the collars to provide the guiding channel. 70 75

The device has been found particularly useful as applied to sweet-wrapping machines of the kind in which the web of wrapping material is fed intermittently on to the surface of an intermittently movable pocketed feed wheel into register with the pocket for the time being at rest at a transfer station, the web then being severed to provide a wrapper which, together with a sweet contained in the pocket is transferred to the wrapping elements of the machine by a reciprocating pusher. 80 85

When feeding the web on to the feed wheel surface in the above manner, it will generally be convenient to arrange the knife blade as near to the wheel surface as mechanical considerations permit, and in a convenient

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arrangement for this purpose, the ledger blade is stationary and disposed below the pivotal axis of the knife blade with its upper surface inclined towards that axis.

By way of example, the invention will now be described in greater detail with reference to the accompanying diagrammatic drawings, as applied to a sweet-wrapping machine.

In the drawings:

Figure 1 is an elevation of part of the wrapping machine showing the web-severing mechanism,

Figure 2 is a plan of the same part of the machine,

Figure 3 is a cross-section taken along the line 3—3 of Figure 2, and drawn to a somewhat larger scale, and

Figure 4 is a part-sectional view taken along the line 4—4 in Figure 3.

The machine is of the general type in which a web 11 of wrapping material is fed intermittently by a pair of driven feed rollers 12 on to the surface of an intermittently rotatable pocketed feed wheel 13 into register with the pocket 14 for the time being at rest at a transfer station, generally referred to by reference numeral 16, the web then being severed by a cutting device, generally referred to by reference numeral 17, to provide a wrapper 18 which, together with a sweet 19 contained in the pocket 14, is transferred to a waiting pocket in an intermittently rotatable mould wheel 21 by a reciprocating pusher 22 and a wrapper nipping member 23.

The severing device 17 consists generally of a stationary ledger blade 24, an oscillating knife blade 26, and a stripper blade 27. The knife and stripper blades 26 and 27 are formed from two semi cylindrical segments having their end portions closely fitting into recesses in collars 28 and secured by setscrews 29, the collars each being formed integrally with journals 31 by which the assembly is pivotally mounted for oscillation in bearings 32 secured to the machine framework 33.

Between the collars 28, the knife and stripper blades 26 and 27 are ground away as at 34, and 36, respectively, to provide on the knife blade 26 a web-guiding surface, and on the stripper blade 27 a web-supporting surface, the gap between the edge of the knife blade 26 and that of the stripper blade 27 being sufficient to allow comfortable passage of the web 11, say $1/16''$ or less. In order to avoid undue oscillation of the web itself, the surfaces 34 and 36 are ground to diverge rearwardly to form a tapered guiding channel 37.

The channel 37 serves to lead the web 11 past the ledger blade 24 in readiness for each cutting action, and with the web fed in timed relationship with the oscillation of the knife and stripper unit, the web 11 is first severed by movement of the blade 26 into cutting re-

lationship with the blade 24 and then, upon reverse movement of the unit, the leading edge of the web is stripped from the ledger blade 24 and led past that blade in readiness for the next cutting action.

The knife and stripper unit 26, 27 is oscillated by a cam- and link-operated arm 38 secured to the journal 31 at one end of the unit, and it will be seen that, upon upward movement of the stripping edge of the blade 27, the supporting surface 36 causes the leading portion of the oncoming web 11 to move along an upwardly inclined path at least for a substantial part of its movement towards register with the pocket 14, thus avoiding contact between the leading edge of the web 11 and the feed wheel surface at least until the wrapper length is approaching register with the particular pocket at the transfer station 16.

WHAT WE CLAIM IS:—

1. A web-severing mechanism, comprising a ledger blade and a knife blade adapted for relative oscillation for movement into and out of cutting engagement with each other, a web-guiding surface on the knife blade extending rearwardly from its cutting edge, a stripper blade secured to the knife blade to cause its stripping edge to move relatively to the ledger blade through a plane containing the edge of the ledger blade in close proximity to that edge, the edge of the stripper blade being spaced from that of the knife blade by an amount sufficient to allow clear passage of the web, and a web-supporting surface on the stripper blade extending rearwardly from its edge in spaced relationship with the guiding surface on the knife blade, the web-guiding and supporting surfaces diverging rearwardly to form a taper guiding channel.

2. Mechanism as in claim 1, wherein the ledger blade is stationary and the knife blade arranged for oscillation into and out of cutting relationship with the ledger blade.

3. Mechanism as in either of claims 1 and 2, wherein the knife and stripper blades are formed as two semi-cylindrical segments secured together at their ends by collars each forming part of a journal by which the assembly is pivotally mounted for oscillation, the flat surfaces of the two segments being ground away between the collars to provide the guiding channel.

4. A wrapping machine comprising a web-severing mechanism as in any of the preceding claims.

5. A web-severing mechanism and wrapping machine employing such mechanism substantially as described with reference to the accompanying drawings.

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PROVISIONAL SPECIFICATION

No. 38935 A.D. 1956

Improvements in Web-Severing Mechanisms

We, ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare this invention to be described in the following statement:—

This invention relates to web-severing mechanisms, and more particularly to such mechanisms in wrapping machines.

According to the present invention, a web-severing mechanism comprises a stationary ledger blade, a pivotal knife blade adapted to be oscillated for movement into and out of cutting engagement with the ledger blade, a web-guiding surface on the blade extending rearwardly from its cutting edge, a stripper blade secured to the knife blade for oscillation therewith to cause its stripping edge to move through the plane containing the edge of the ledger blade in close proximity to that edge, the edge of the stripper blade being spaced from that of the knife blade by an amount sufficient to allow clear passage of the web and a web-supporting surface on the stripper blade extending rearwardly from its edge in spaced relationship with the guiding surface on the knife blade. The edge of the knife blade is preferably inclined slightly in the lengthwise direction to provide for progressive cutting engagement with the ledger blade.

The web-guiding and supporting surfaces together provide a guiding channel for leading the web over the ledger blade in readiness for each cutting action, and with the web fed forwards in timed relationship with the oscillation of the knife and stripper unit, the web is first severed by movement of the knife blade into cutting engagement with the ledger blade and then, upon reverse movement of the unit, the leading edge of the web is stripped from the ledger blade and led over that blade in readiness for the next cutting action.

The device has been found particularly use-

ful as applied to sweet-wrapping machines of the kind in which the web of wrapping material is fed intermittently on to the surface of an intermittently movable pocketed feed wheel into register with the pocket for the time being at rest at a transfer station, the web then being severed to provide a wrapper which, together with a sweet contained in the pocket is transferred to the wrapping elements of the machine by a reciprocating pusher.

With such a machine, it is preferable to avoid contact between the leading edge of the web (which remains unsupported after passing over the ledger blade) and the feed wheel surface, at least until the wrapper length is approaching register with the particular pocket at the transfer station. Such contact is avoided with the present cutting device, the supporting surface of the stripper blade causing the leading portion of the web to move along an upwardly inclined path at least for a substantial part of its movement towards register with the pocket.

The gap between the edge of the knife blade and that of the stripper blade need only be sufficient to allow comfortable passage of the web, say 1/16" or less, and in order to avoid undue oscillation of the web itself, the guiding and supporting surfaces on the knife and stripper blades, respectively, may diverge rearwardly to form a tapered guiding channel.

The knife and stripper blades are conveniently made as two semi-circular segments secured together at their ends by collars each forming part of a journal by which the assembly is pivotally mounted for oscillation in the machine, the flat surfaces of the two segments being ground away between the collars to provide the guiding channel.

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PROVISIONAL SPECIFICATION

No. 2545 A.D. 1957

Improvement in Web-Severing Mechanisms

We, ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company, of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare this invention to be described in the following statement:—

This invention relates to web-severing mechanisms, and more particularly to such mechanisms in wrapping machines.

According to the present invention, a web-severing mechanism comprises a ledger blade and a knife blade adapted for relative oscillation for movement into and out of cutting

engagement with each other, a web-guiding surface on the blade extending rearwardly from its cutting edge, a stripper blade secured to the knife blade for oscillation therewith to cause its stripping edge to move through the plane containing the edge of the ledger blade in close proximity to that edge, the edge of the stripper blade being spaced from that of the knife blade by an amount sufficient to allow clear passage of the web, and a web-supporting surface on the stripper blade extending rearwardly from its edge in spaced

relationship with the guiding surface on the knife blade. The edge of the knife blade is preferably inclined slightly in the lengthwise direction to provide for progressive cutting engagement with the ledger blade.

The web-guiding and supporting surfaces together provide a guiding channel for leading the web over the ledger blade in readiness for each cutting action, and with the web fed forwards in timed relationship with the oscillation of the knife and stripper unit, the web is first severed by movement of the knife blade into cutting engagement with the ledger blade and then, upon reverse movement of the unit the leading edge of the web is stripped from the ledger blade and led over that blade in readiness for the next cutting action.

The ledger blade may be stationary and the knife blade oscillated for movement into and out of cutting engagement with the blade. Alternatively, the knife blade may be stationary and the ledger blade oscillated into and out of cutting engagement with the knife blade. Again, both may be oscillated to bring their edges into and out of cutting engagement.

The gap between the edge of the knife blade and that of the stripper blade need only be sufficient to allow comfortable passage of the web, say 1/16" or less, and in order to avoid undue oscillation of the web itself, the guiding and supporting surfaces on the knife and stripper blades, respectively, may diverge rearwardly to form a tapered guiding channel.

The knife and stripper blades are conveniently made as two semi-circular segments secured together at their ends by collars each forming part of a journal by which the assembly is pivotally mounted for oscillation in the machine, the flat surfaces of the two segments being ground away between the collars to provide the guiding channel.

The device has been found particularly useful as applied to sweet-wrapping machines of the kind in which the web of wrapping material is fed intermittently on to the surface of an intermittently movable pocketed feed wheel

into register with the pocket for the time being at rest at a transfer station, the web then being severed to provide a wrapper which, together with a sweet contained in the pocket is transferred to the wrapping elements of the machine by a reciprocating pusher.

When feeding the web on to the feed wheel surface in the above manner, it will generally be convenient to arrange the knife blade as near to the wheel surface as mechanical considerations permit, and for this reason, the ledger blade is conveniently supported above the knife blade, the cutting action then taking place by upward pivotal movement of the knife edge into cutting engagement with the ledger blade, the edge of the latter extending below the pivotal axis of the knife blade to allow the cutting action to take place in a plane adjacent the feed wheel surface. If a stationary ledger blade is used with such arrangement, however, it tends to interfere with the free passage of the wrapper during its upward transfer to the wrapping elements. To avoid this, the ledger blade is also pivotally mounted and arranged to move, after the cutting action, out of the path of upward movement of the wrapper. For the same reason, the lower part of the knife blade is chamfered at an acute angle.

With such a machine, it is preferable to avoid contact between the leading edge of the web (which remains unsupported after passing over the ledger blade) and the feed wheel surface, at least until the wrapper length is approaching register with the particular pocket at the transfer station. Such contact is avoided with the present cutting device, the supporting surface of the stripper blade causing the leading portion of the web to move along an upwardly inclined path at least for a substantial part of its movement towards register with the pocket.

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PROVISIONAL SPECIFICATION

No. 4014 A.D. 1957

Improvements in Web-Severing Mechanisms

We, ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company, of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare this invention to be described in the following statement:—

This invention relates to web-severing mechanisms, and more particularly to such mechanisms in wrapping machines.

According to the present invention, a web-severing mechanism comprises a ledger blade and a knife blade adapted for relative oscillation for movement into and out of cutting engagement with each other, a web-guiding

surface on the blade extending rearwardly from its cutting edge, a stripper blade secured to the knife blade for oscillation therewith to cause its stripping edge to move through the plane containing the edge of the ledger blade in close proximity to that edge, the edge of the stripper blade being spaced from that of the knife blade by an amount sufficient to allow clear passage of the web, and a web-supporting surface on the stripper blade extending rearwardly from its edge in spaced relationship with the guiding surface on the knife blade. The edge of the knife blade is pre-

ferably inclined slightly in the lengthwise direction to provide for progressive cutting engagement with the ledger blade.

5 The web-guiding and supporting surface together provide a guiding channel for leading the web past the ledger blade in readiness for each cutting action, and with the web fed forwards in timed relationship with the oscillation of the knife and stripper unit, the web is
10 first severed by movement of the knife blade into cutting engagement with the ledger blade and then, upon reverse movement of the unit, the leading edge of the web is stripped from the ledger blade and led past that blade in
15 readiness for the next cutting action.

The ledger blade may be stationary and the knife blade oscillated for movement into and out of cutting engagement with the blade. Alternatively, the knife blade may be stationary and the ledger blade oscillated into and out of cutting engagement with the knife blade. Again, both may be oscillated to bring their edges into and out of cutting engagement.

25 The gap between the edge of the knife blade and that of the stripper blade need only be sufficient to allow comfortable passage of the web, say 1/16" or less, and in order to avoid undue oscillation of the web itself, the guiding and supporting surfaces on the knife and
30 stripper blades, respectively, may diverge rearwardly to form a tapered guiding channel.

The knife and stripper blades are conveniently made as two semi-circular segments secured together at their ends by collars each forming part of a journal by which the assembly is pivotally mounted for oscillation in the machine, the flat surfaces of the two segments being ground away between the collars to provide the guiding channel.

40 The device has been found particularly useful as applied to sweet-wrapping machines of the kind in which the web of wrapping material is fed intermittently on to the surface of an intermittently movable pocketed feed wheel
45 into register with the pocket for the time being

at rest at a transfer station, the web then being severed to provide a wrapper which, together with a sweet contained in the pocket is transferred to the wrapping elements of the machine by a reciprocating pusher. 50

When feeding the web on to the feed wheel surface in the above manner, it will generally be convenient to arrange the knife blade as near to the wheel surface as mechanical considerations permit, and in a convenient arrangement for this purpose, the ledger blade is stationary and disposed below the pivotal axis of the knife blade with its upper surface inclined towards that axis. 55

To avoid interference between the cut edge of the wrapper during its upward transfer to the wrapping elements, the upper surface of the knife blade is preferably chamfered from its edge rearwardly so as to move clear of the edge of the ledger blade immediately after the cutting action. 60 65

With such a machine, it is preferable to avoid contact between the leading edge of the web and the feed wheel surface at least until the wrapper length is approaching register with the particular pocket at the transfer station. The avoidance of such contact is facilitated by the present invention, the supporting surface of the stripper blade causing the leading portion of the web to move along an upwardly inclined path at least for a substantial part of its movement towards register with the pocket. Such action of the stripper blade may be augmented by the provision of supporting rods or fingers extending forwardly from the ledger blade towards the pocket. Thus, there may be one pair of such rods extending one on each side of and beyond the pocket close to the feed wheel surface, and a further pair between the first pair and stopping short of the pocket to avoid interference with the transferring action of the pusher. 70 75 80 85

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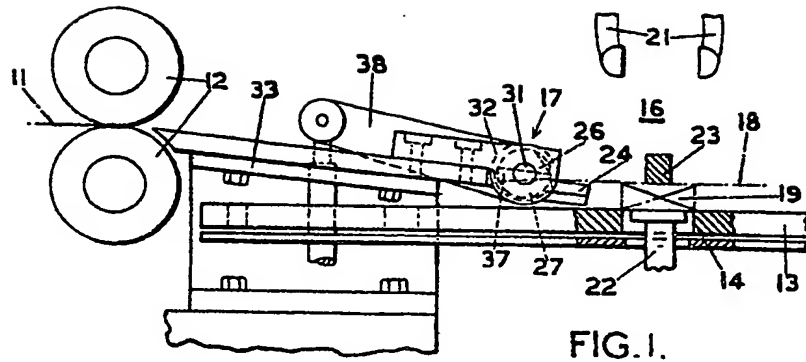


FIG. 1.

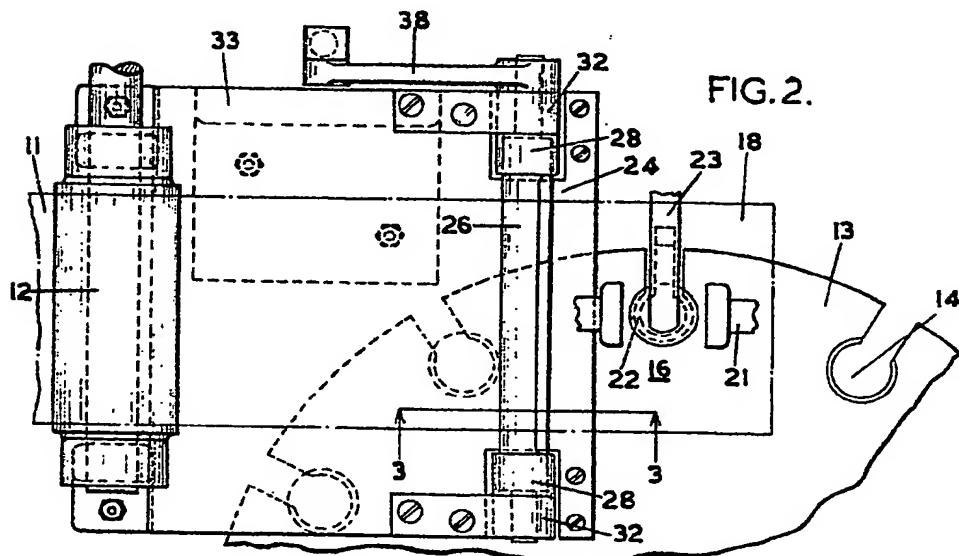


FIG. 2.

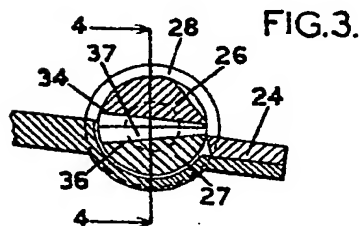


FIG. 3.

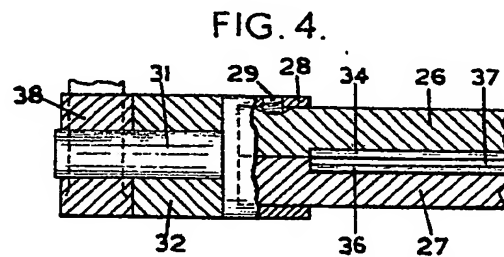


FIG. 4.